

# **Appendix D**

## **Plant Survey Report Botanical Survey Report**

### **Brooks Mill THP**

### **Cascade Resource Consultants**

prepared by

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**August 2009**

submitted to Cascade Resource Consultants  
21 August 2009

**Brooks Mill THP Botanical Survey**

August 2009

In March 2009, a survey was initiated at the request of Cascade Resource Consultants for rare, threatened or endangered plants in the areas to be included in a proposed timber harvest plan. The plan was to be in the Soup Creek drainage of southeastern Modoc County, and include parts of sections 24, 25 and 36 of T40N R14E. Elevations range from about 5160 ft to about 5490 ft (1573 - 1674 m). The area is covered on the Soup Creek USGS 7.5° topographic quadrangle map.

Searches were made of the California Native Plant Society's Inventory of Rare and Endangered Plants of California (v7-09a 1-13-09) (CNPS Inventory), and of the California Department of Fish and Game's (DFG) Natural Diversity Database (CNDDDB), covering the following quad map areas, to develop a list of species that were potential issues in the area.

Dorris Reservoir (691B) 4112044

Eagle Peak (690C) 4112032

Emerson Peak (673B) 4112022

Jess Valley (674A) 4112023

Little Juniper Reservoir (691C) 4112034

Shields Creek (691A) 4112043

Soup Creek (691D) 4112033

Tule Mountain (674B) 4112024

Warren Peak (690B) 4112042

The search of the CNPS Inventory yielded the following list of species.

scientific name	common name	family	CNPS list
<i>Alisma gramineum</i>	grass alisma	Alismataceae	2.2
<i>Arabis cobrensis</i>	Masonic rock cress	Brassicaceae	2.3
<i>Arnica fulgens</i>	hillside arnica	Asteraceae	2.2
<i>Atriplex gardneri</i> var. <i>falcata</i>	falcate saltbush	Chenopodiaceae	2.2
<i>Betula glandulosa</i>	dwarf resin birch	Betulaceae	2.2
<i>Botrychium ascendens</i>	upswept moonwort	Ophioglossaceae	2.3
<i>Botrychium crenulatum</i>	scalloped moonwort	Ophioglossaceae	2.2
<i>Botrychium lunaria</i>	common moonwort	Ophioglossaceae	2.3
<i>Botrychium minganense</i>	Mingan moonwort	Ophioglossaceae	2.2
<i>Carex limosa</i>	mud sedge	Cyperaceae	2.2
<i>Carex petasata</i>	Liddon's sedge	Cyperaceae	2.3
<i>Carex vallicola</i>	western valley sedge	Cyperaceae	2.3
<i>Claytonia megarhiza</i>	fell-fields claytonia	Portulacaceae	2.3
<i>Cordylanthus capitatus</i>	Yakima bird's-beak	Scrophulariaceae	2.2
<i>Delphinium stachydeum</i>	spiked larkspur	Ranunculaceae	2.3
<i>Dimeresia howellii</i>	doublet	Asteraceae	2.3
<i>Drosera anglica</i>	English sundew	Droseraceae	2.3
<i>Erigeron disparipilus</i>	Snake River daisy	Asteraceae	2.1
<i>Eriogonum prociduum</i>	prostrate buckwheat	Polygonaceae	1B.2
<i>Galium glabrescens</i> ssp. <i>modocense</i>	Modoc bedstraw	Rubiaceae	1B.2

scientific name	common name	family	CNPS list
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	Scrophulariaceae	1B.2
<i>Lomatium foeniculaceum</i> var. <i>macdougalii</i>	MacDougal's lomatium	Apiaceae	2.2
<i>Lomatium hendersonii</i>	Henderson's lomatium	Apiaceae	2.3
<i>Lomatium ravenii</i>	Raven's lomatium	Apiaceae	2.3
<i>Lomatium roseanum</i>	adobe lomatium	Apiaceae	1B.2
<i>Lupinus latifolius</i> var. <i>barbatus</i>	bearded lupine	Fabaceae	1B.2
<i>Lupinus uncialis</i>	Lilliput lupine	Fabaceae	2.2
<i>Mertensia cusickii</i>	Toiyabe bluebells	Boraginaceae	2.2
<i>Mertensia longiflora</i>	long bluebells	Boraginaceae	2.2
<i>Mertensia oblongifolia</i> var. <i>amoena</i>	beautiful sagebrush bluebells	Boraginaceae	2.2
<i>Mertensia oblongifolia</i> var. <i>oblongifolia</i>	sagebrush bluebells	Boraginaceae	2.2
<i>Mimulus cusickii</i>	Cusick's monkeyflower	Scrophulariaceae	2.3
<i>Nemophila breviflora</i>	Great Basin nemophila	Hydrophyllaceae	2.3
<i>Osmorhiza depauperata</i>	blunt-fruited sweet-cicely	Apiaceae	2.3
<i>Phacelia sericea</i> var. <i>ciliosa</i>	blue alpine phacelia	Hydrophyllaceae	2.3
<i>Phlox muscoides</i>	squarestem phlox	Polemoniaceae	2.3
<i>Potamogeton filiformis</i>	slender-leaved pondweed	Potamogetonaceae	2.2
<i>Potamogeton zosteriformis</i>	eel-grass pondweed	Potamogetonaceae	2.2
<i>Ribes hudsonianum</i> var. <i>petiolare</i>	western black currant	Grossulariaceae	2.3
<i>Salix bebbiana</i>	Bebb's willow	Salicaceae	2.3
<i>Salvia dorrii</i> var. <i>incana</i>	fleshy sage	Lamiaceae	3
<i>Saxifraga cespitosa</i>	tufted saxifrage	Saxifragaceae	2.3
<i>Silene oregana</i>	Oregon campion	Caryophyllaceae	2.3
<i>Stachys palustris</i> ssp. <i>pilosa</i>	hairy marsh hedge-nettle	Lamiaceae	2.3
<i>Synthyris missurica</i> ssp. <i>missurica</i>	kitten-tails	Scrophulariaceae	2.3

A nine-quad search of CNDDDB (3-1-09) based on above quads yielded no additional species.

A search was made of the CNDDDB BIOS map covering the area. Only one cnddb plant species was shown as occurring in the THP area, *Stachys palustris* ssp. *pilosa*. It was shown as a large polygon covering the entire area.

A review of the Web Soil Survey for the THP site showed that all soil types here appear to be derived from basalt, i.e. volcanic, with pH ranging from 6.0 to 7.0, i.e. slightly acidic to neutral (not alkaline).

The following species were removed from further consideration due to the absence of their elevation range in the plan area.

*Botrychium lunaria*

*Claytonia megarhiza*

*Cordylanthus capitatus*

*Erigeron disparipilus*

*Osmorhiza depauperata*

*Phacelia sericea* var. *ciliosa*

*Salvia dorrii* var. *incana*

*Synthyris missurica* ssp. *missurica*

The following species were removed from further consideration due to the absence of their aquatic habitat in the plan area.

*Alisma gramineum**Potamogeton zosteriformis**Potamogeton filiformis*

The following species were removed from further consideration due to the absence of their upper montane, subalpine or alpine habitats in the plan area.

*Lupinus latifolius* var. *barbatus**Silene oregana**Phlox muscoides**Silene oregana*

The following species were removed from further consideration due to the absence of their alkaline soil habitats in the plan area.

*Atriplex gardneri* var. *falcata**Lomatium ravenii*

After the first visit to the site, habitats for the following species were able to be eliminated as well.

*Drosera anglica**Galium glabrescens* ssp. *Modocense**Eriogonum prociduum**Gratiola heterosepala**Lupinus uncialis**Arabis cobrensis**Mimulus cusickii**Delphinium stachydeum**Saxifraga cespitosa*

These amendments yielded the revised list of target species shown in the following table, for which descriptions, illustrations, and photographs, if available, from the references below and from previous encounters were reviewed to update familiarity. An analysis of blooming period and habitat/plant community type was made and compared with proposed timber harvest areas to determine most probable times and places to search.

Scientific name	Blooming period	Communities	Elevation	CNPS list
<b><i>Arnica fulgens</i></b>	May-Jul (Aug)	"Great Basin scrub (GBScr) "Lower montane coniferous forest (LCFr) "Meadows and seeps (Medws)/mesic	1495 - 2700 meters	2.2
<b><i>Betula glandulosa</i></b>	May-Jun	"Bogs and fens (BgFns) "Lower montane coniferous forest (LCFr) "Meadows and seeps (Medws) "Marshes and swamps (MshSw) "Subalpine coniferous forest (SCFr)/mesic	1300 - 2300 meters	2.2
<b><i>Botrychium ascendens</i></b>	Jul-Aug	"Lower montane coniferous forest (LCFr) "Meadows and seeps (Medws)/mesic	1500 - 2285 meters	2.3
<b><i>Botrychium crenulatum</i></b>	Jun-Sep	"Bogs and fens (BgFns) "Lower montane coniferous forest (LCFr) "Meadows and seeps (Medws) "Marshes and swamps (MshSw)(freshwater) "Upper montane coniferous forest (UCFr)	1268 - 3280 meters	2.2

Scientific name	Blooming period	Communities	Elevation	CNPS list
<i>Botrychium minganense</i>	Jul-Sep	"Bogs and fens (BgFns) "Lower montane coniferous forest (LCFr) "Upper montane coniferous forest (UCFr)/mesic	1455 - 2055 meters	2.2
<i>Carex limosa</i>	Jun-Aug	"Bogs and fens (BgFns) "Lower montane coniferous forest (LCFr) "Meadows and seeps (Medws) "Marshes and swamps (MshSw) "Upper montane coniferous forest (UCFr)	1200 - 2700 meters	2.2
<i>Carex petasata</i>	May-Jul	"Broadleaved upland forest (BUFr) "Lower montane coniferous forest (LCFr) "Meadows and seeps (Medws) "Pinyon and juniper woodland (PJWld)	600 - 3320 meters	2.3
<i>Carex vallicola</i>	Jul-Aug	"Great Basin scrub (GBScr) "Meadows and seeps (Medws)/mesic	1525 - 2805 meters	2.3
<i>Dimeresia howellii</i>	May-Sep	"Lower montane coniferous forest (LCFr) "Pinyon and juniper woodland (PJWld)/volcanic, xeric	1340 - 2380 meters	2.3
<i>Lomatium foeniculaceum</i> <i>var. macdougallii</i>	Apr-Jul	"Chenopod scrub (ChScr) "Great Basin scrub (GBScr) "Lower montane coniferous forest (LCFr) "Pinyon and juniper woodland (PJWld)/volcanic	1200 - 1900 meters	2.2
<i>Lomatium hendersonii</i>	Mar-Jun	"Great Basin scrub (GBScr) "Lower montane coniferous forest (LCFr) "Pinyon and juniper woodland (PJWld)/rocky, clay	1400 - 2440 meters	2.3
<i>Lomatium roseanum</i>	Jun-Jul	"Great Basin scrub (GBScr) "Lower montane coniferous forest (LCFr)/openings, gravelly or rocky	1463 - 2255 meters	1B.2
<i>Mertensia cusickii</i>	Jun-Jul	"Great Basin scrub (GBScr) "Meadows and seeps (Medws)	1495 - 2500 meters	2.2
<i>Mertensia longiflora</i>	Apr-Jun	"Great Basin scrub (GBScr) "Lower montane coniferous forest (LCFr)	1525 - 2200 meters	2.2
<i>Mertensia oblongifolia</i> <i>var. amoena</i>	Apr-Jul	"Great Basin scrub (GBScr) "Meadows and seeps (Medws)	1630 - 2315 meters	2.2
<i>Mertensia oblongifolia</i> <i>var. oblongifolia</i>	Apr-Jul	"Great Basin scrub (GBScr) "Lower montane coniferous forest (LCFr) "Meadows and seeps (Medws) "Subalpine coniferous forest (SCFr)/usually mesic	1000 - 3000 meters	2.2

Scientific name	Blooming period	Communities	Elevation	CNPS list
<b><i>Nemophila breviflora</i></b>	May-Jul	"Great Basin scrub (GBScr) "Meadows and seeps (Medws) "Upper montane coniferous forest (UCFr)/mesic	1220 - 2410 meters	2.3
<b><i>Ribes hudsonianum</i> var. <i>petiolare</i></b>	May-Jul	"Riparian scrub (RpScr)	1500 - 2230 meters	2.3
<b><i>Salix bebbiana</i></b>	May	"Marshes and swamps (MshSw)(stream banks and lake margins) "Riparian scrub (RpScr)	1200 - 2230 meters	2.3
<b><i>Stachys palustris</i> ssp.</b>	Jun-Aug	<b><i>pilosa</i></b> "Great Basin scrub (GBScr)(mesic) "Meadows and seeps (Medws)	1200 - 1770 meters	2.3

Searches for occurrences of the above species were conducted on foot in a meandering pattern through the areas under consideration on 22 April 2009, 4 June 2009, 24 June 2009, and 16 July 2009. Some individual areas of potential habitat were checked that had been previously located by a study of topographic maps and aerial photographs, or by reference from foresters familiar with the area. The routes followed and areas searched during the course of these surveys are indicated on the attached maps.

The results of this survey are summarized as follows.

**None of the species on the above target list were found to be present in the THP area.**

The following is a partial list of plant taxa noted in or near this THP area.

*Achillea millefolia*  
*Allium* sp.  
*Amelanchier* sp.  
*Anaphalis margaritacea*  
*Arnica cordifolia*  
*Artemisia tridentata*  
*Asclepias cordifolia*  
*Astragalus filipes*  
*Balsamorhiza sagittata*  
*Calystegia occidentalis*  
*Carex nebrascensis*  
*Castilleja miniata* ssp. *miniata*  
*Ceanothus prostratus*  
*Cercocarpus ledifolius*  
*Clarkia lassenensis*  
*Clarkia rhomboidea*  
*Claytonia perfoliata*  
*Claytonia rubra*  
*Collinsia* sp.  
*Delphinium nuttallianum*  
*Ericameria nauseosa*

*Hydrophyllum* sp.  
*Iris missouriensis*  
*Juniperus occidentalis*  
*Linum usatitissimum*  
*Lomatium triternatum*  
*Lupinus* sp.  
*Mimulus guttatus*  
*Nemophila heterophylla*  
*Paeonia brownii*  
*Penstemon laetus* var. *sagittatus*  
*Penstemon rydbergii* var. *oreocharis*  
*Phlox* sp.  
*Pinus jeffreyi*  
*Poa bulbosa*  
*Populus tremuloides*  
*Potentilla millefolia*  
*Potentilla* sp.  
*Prunus virginiana*  
*Pseudostellaria jamesiana*  
*Ranunculus* sp.  
*Ribes* sp. (non-target, nodal spines present)  
*Rosa* sp.  
*Salix* spp. (non-target)  
*Senecio aronicoides*  
*Sidalcea oregana* ssp. *oregana*  
*Sisyrhynchium bellum*  
*Stellaria longipes*  
*Triteleia hyacinthina*  
*Veratrum* sp.  
*Veronica americana*  
*Viola purpurea*

This survey was conducted and/or supervised by Martin J. Lenz who holds a degree in biology from California State University, Humboldt, with emphasis on botanical studies. He is a member of the California Native Plant Society, the California Botanical Society and the American Bryological and Lichenological Society, and the Wyoming Native Plant Society, and has over 40 years experience in plant identification and photography, including numerous rare plant surveys since 1998.

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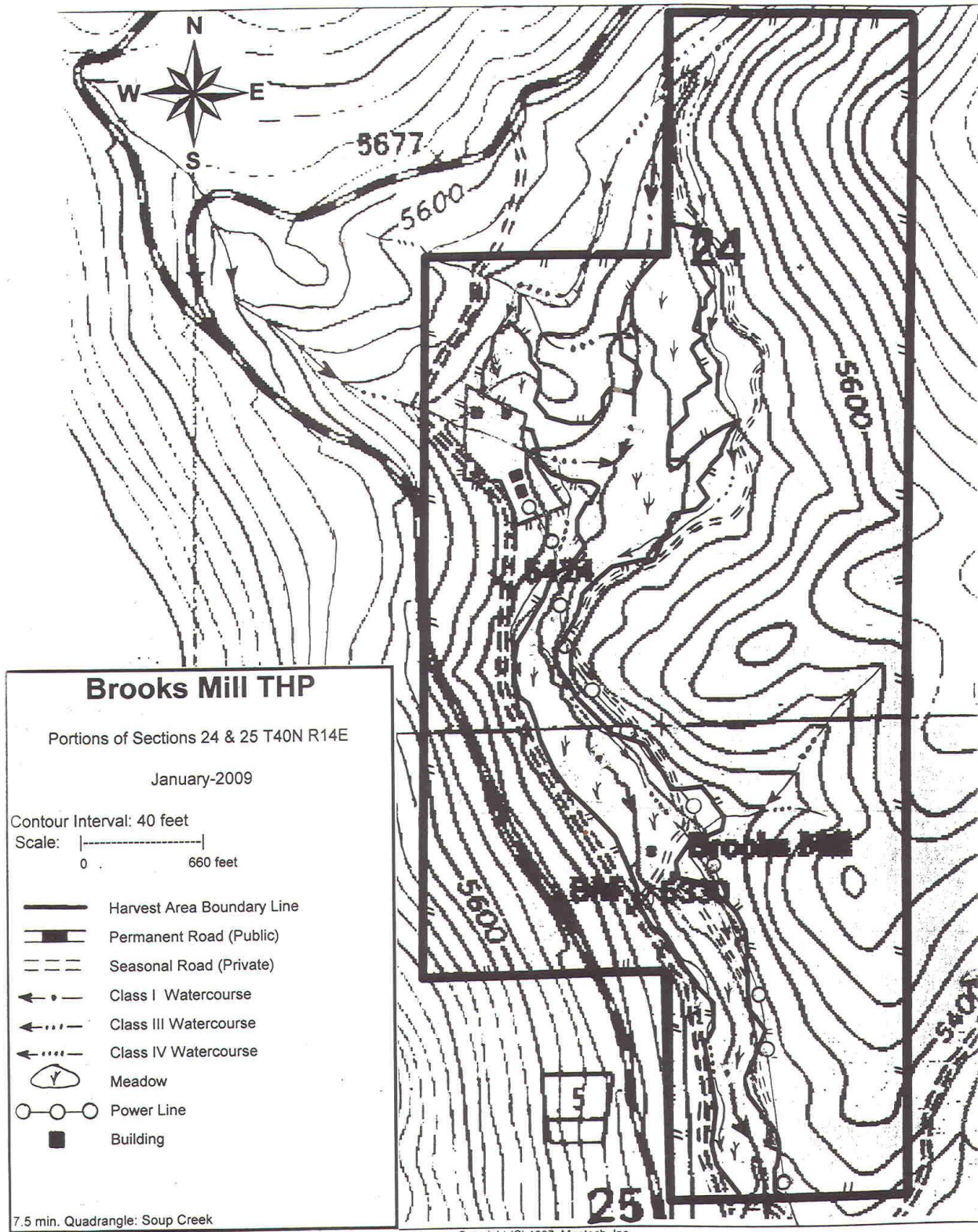
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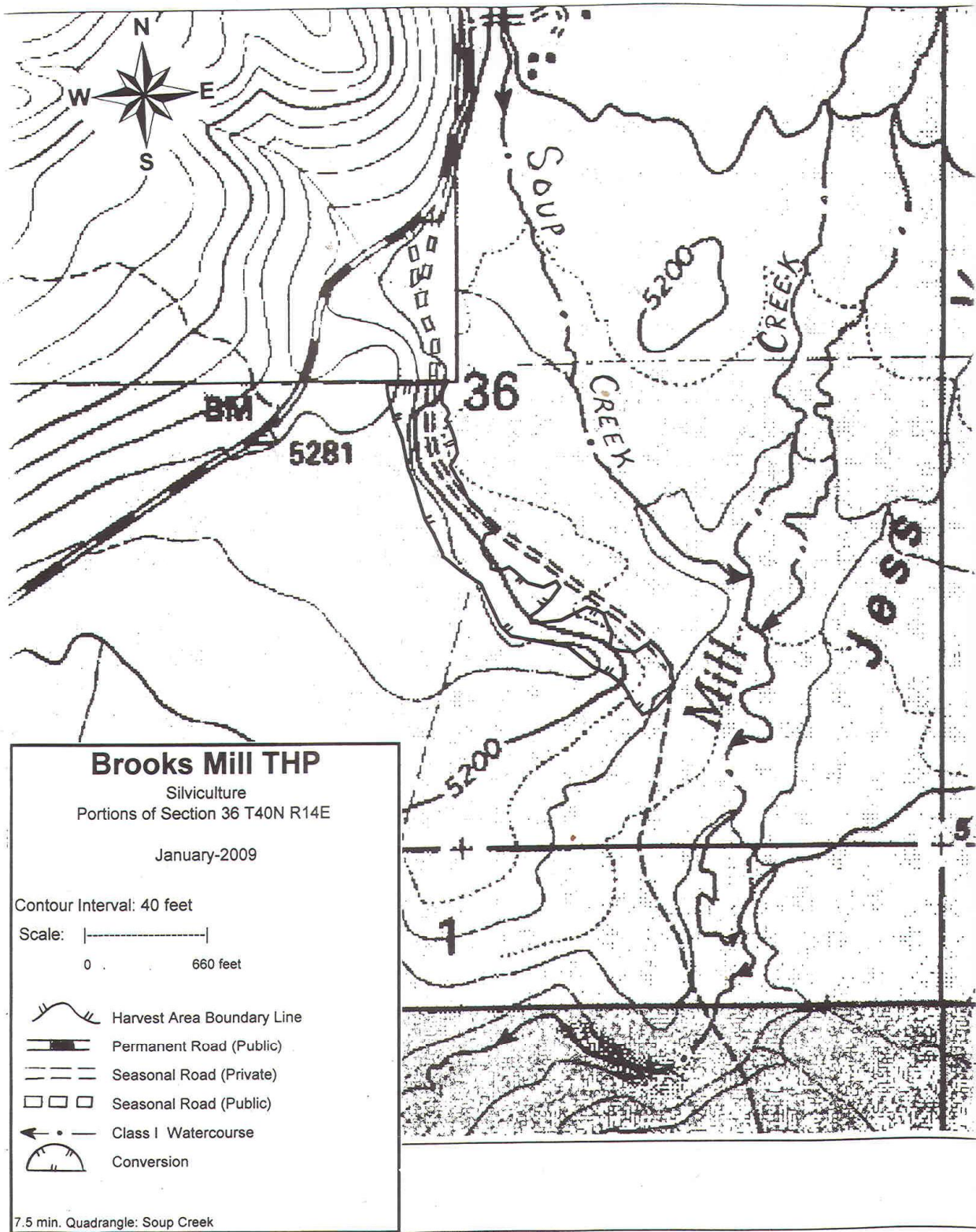
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